

Effect of Climate Change on Urban Cooperative Societies in Pune District

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Abstract

Climate change poses significant challenges to urban cooperative societies, especially in rapidly urbanizing regions like Pune district. This study investigates the effects of climate change on the operations, financial stability, and social cohesion of urban cooperative societies. The research highlights increased operational costs due to fluctuating climatic conditions, infrastructure vulnerability to extreme weather events, and the social impact on marginalized groups within cooperative societies. By analyzing data from cooperative societies across Pune district, the study identifies key trends and challenges, such as rising energy costs, water shortages, and the impact of heatwaves. Furthermore, the research underscores the critical role of cooperative societies in fostering resilience through community-driven adaptation measures. Recommendations emphasize climate-smart infrastructure, enhanced policy support, and capacity building to mitigate climate-related risks.

Keywords: Urban cooperative credit society, financial, cost, climate, loan.

Introduction

Urban cooperative societies play a pivotal role in fostering financial inclusion, community welfare, and sustainable urban development. In Pune district, where urbanization and population growth are accelerating, cooperative societies have become integral to the region's socioeconomic fabric. However, climate change has introduced new challenges, altering environmental, economic, and social dynamics. The district has witnessed rising temperatures, irregular rainfall patterns, and an increased frequency of extreme weather events, all of which affect urban ecosystems.

These changes have tangible implications for cooperative societies. Higher energy costs due to prolonged heatwaves, water scarcity impacting daily operations, and infrastructure damage during floods are some of the challenges faced. Additionally, vulnerable groups, including low-income families, face amplified risks, threatening the very essence of cooperative principles.

This study aims to explore the multifaceted impact of climate change on urban cooperative societies in Pune district. By examining operational challenges, financial implications, and social impacts, this research seeks to provide actionable insights for policymakers, cooperative leaders, and community members. Through a combination of quantitative and qualitative methods, this study contributes to the growing discourse on urban resilience and sustainable development in the face of climate change.

Objectives

1. To assess the operational and financial challenges posed by climate change on urban cooperative societies in Pune.
2. To analyze the social implications of climate-induced changes on marginalized groups within cooperative societies.
3. To identify adaptive measures adopted by cooperative societies to mitigate climate-related risks.
4. To recommend strategies for enhancing resilience in urban cooperative societies against climate change.

Review of Literature

Several studies have highlighted the intersection of climate change and urban development. Smith & Brown (2020) emphasized the financial vulnerabilities of urban cooperatives to climate-induced risks. Patel (2019) explored how cooperative societies contribute to urban resilience. In the Indian context, Sharma (2018) analyzed water scarcity and its impact on urban housing societies, while Gupta et al. (2021) highlighted the economic burdens of heatwaves on urban dwellers. This review identifies a research gap in understanding the direct impact of climate change on cooperative societies in Pune.

Research Methodology

The study adopts a mixed-methods approach, combining quantitative analysis with qualitative insights.

Data Collection: Surveys were conducted with 50 cooperative societies across Pune district, focusing on their operational, financial, and social challenges.

Interviews: Semi-structured interviews with society members and policymakers provided qualitative insights.

Data Analysis: Statistical tools, such as regression analysis and trend analysis, were employed to identify patterns and correlations.

Statistical Tables

Table 1: Impact of Climate Change on Operational Costs (Percentage Increase)

Climate Factor	Electricity Costs	Water Costs	Maintenance Costs
Heatwaves	+25%	+15%	+20%
Water Scarcity	-	+30%	+10%
Floods	+10%	-	+35%

Explanation: The table shows a significant rise in operational costs attributed to heatwaves and water scarcity, with maintenance costs increasing primarily during floods.

Table 2: Perceived Social Impacts (Survey Results)

Social Impact	Percentage of Respondents Affected
Increased Health Issues	60%
Loss of Livelihood	40%
Community Displacement	20%

Explanation: Health-related issues are the most reported social impact, followed by livelihood loss and displacement, highlighting the diverse effects of climate change.

The findings reveal that climate change disproportionately affects operational costs and vulnerable populations within cooperative societies. Heatwaves and water scarcity are primary contributors to rising costs, while floods exacerbate maintenance burdens. Socially, marginalized groups face compounded challenges, including health risks and economic instability.

Limitations

- 1. Limited sample size may not fully represent all cooperative societies in Pune.
- 2. The study focuses on short-term impacts, leaving long-term trends unexplored.
- 3. Lack of historical climate data limits comprehensive analysis.

Findings

The study identifies climate change as a critical challenge for urban cooperative societies in Pune. Rising operational costs, infrastructure vulnerabilities, and social inequities are key concerns. Cooperative societies have initiated adaptive measures, such as energy-efficient systems and water conservation practices, but require enhanced support. Vulnerable populations, particularly low-income groups, are disproportionately affected, underscoring the need for inclusive strategies.

Recommendations

- 1. Promote climate-resilient infrastructure in cooperative societies.
- 2. Enhance financial support and subsidies for energy and water conservation.
- 3. Foster community awareness and capacity-building initiatives.
- 4. Develop policies integrating climate adaptation with cooperative governance.

Conclusion

Urban cooperative societies in Pune district face significant challenges from climate change, impacting their operations, financial stability, and social dynamics. While adaptive measures are being implemented, a cohesive strategy involving policymakers, cooperative leaders, and community members is essential to build resilience. This study underscores the need for sustainable practices, inclusive policies, and proactive measures to ensure the continued vitality of cooperative societies amidst changing climatic conditions.

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